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ASH GROVE CEMENT COMPANY

"WESTERN REGION"

Date: May 9, 1994

Mr. Fred Austin
Puget Sound Air Pollution Control Agency
110 Union Street, Suite 500
Seattle, WA. 98119-3958

Re: Ash Grove permit revisions

Dear Mr. Austin,

This letter follows up our March 17, 1994 meeting, in which PSAPCA agreed to consider several permit revisions to Order of Approval No. 3382 to address compliance and reporting issues discussed at our meeting.

1. Emissions during start-up and shutdown
The gas sulfur dioxide, nitrogen dioxide, and carbon ~~dioxide~~ monoxide emission limits in the Order of Approval are designed for steady state kiln operations. Ash Grove cannot reliably meet emission limits during start up, when it is necessary to increase burner output levels to bring several hundred tons of material to a temperature of 2650 degrees F. to start the clinkering process. Attachments 1, 2, and 3 are graphs that show Feed vs MMBTU during three separate kiln starts spanning a period of three days for each. The higher flame temperature, represented on the graphs by the increased thermal input, is required to raise the temperature of the material already in the kiln and maintain the kiln temperature as new feed is added in slowly increasing amounts. The fuel and flame temperature is gradually reduced as a balance between the kiln temperature, feed and ventilation is achieved and the kiln stabilizes.

The higher flame temperature during start up generates nitrogen oxide in higher emission rates than we experience during normal operations. Corresponding with the same periods shown in the above graphs are attachments 4, 5, and 6 representing NOx vs Burning Zone Temperature (BZT) for the same kiln starts. In each start, NOx occasionally exceeded the one hour limit of 668 ppm during the start-up phase but returned to below permitted levels as the kiln stabilized.

During the preheat phase of start-up, sulfur dioxide levels can occasionally spike above the permit concentration limit as shown in the attached graphs 7, 8, 9. Prior to adding feed, ventilation in start-up is insufficient to allow for the addition of sodium bicarbonate sorbent used to reduce levels. This condition can cause exceedances of SO2 and visible emission limits. Normally, sulfur dioxide can be controlled as necessary once feed is introduced into the kiln.

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Also present during the preheat phase of start up and directly related to the limited ventilation in the kiln are fugitive visible emissions. The reduced draft results in a leakage from the feed and discharge ends of the kiln since these locations cannot be completely sealed. This emission disappears once ventilation is introduced to maintain temperature within the preheater after the feed is started.

The described emission limit excursions during start-up are unavoidable because they are a function of the necessary, transient flame temperature and process conditions which are inherent in the design of the kiln system and which cannot be controlled by better equipment, operation or maintenance.

The PSD permit for this plant states that emission concentration limits for NOx, SO2 and CO shall not apply during start up, shutdown, or malfunction. A recent Assurance of Discontinuance between PSAPCA and Holnam Inc. committed PSAPCA to excuse from penalty excess emissions during start up, shutdown and maintenance procedures that cannot be prevented through a better O & M plan, etc.

Ash Grove requests that Order of Approval No. 3382 be amended to include a similar exemption. We request that the following sentence be added to the end of paragraph 5 of the order:

> The limits in this paragraph and otherwise applicable opacity limits shall not apply during start up, shutdown or during maintenance procedures, as defined in Appendix A to this order.

2. Elimination of short term mass emission limits.
Order No. 3382 sets concurrent emission limits for CO, NOx and SO2, stated in terms of lbs./hour and ppm. At the meeting, we explained that the ppm limits were added to the order late in the permitting process to cover situations when the plant runs at less than 100 percent output. The ppm limits were established at levels designed to correlate with the mass limits at maximum output based on projected stack flows of 123,340 dscf/minute at 10% oxygen (See FEB 6, 1990 PSD application TABLE 2.1).

As built, actual stack flows from our plant average 102464 dscf/minute at 8.34% oxygen (117,997 dcfm/minute at 10% oxygen) during full production. As a result, the pollutant concentration in the flue gases at full output is higher than anticipated and the ppm limits turn out to be more stringent than the short term mass emission limits. Furthermore, a single spike in emissions almost invariably violates two emissions limits for each pollutant.

At the meeting everyone agreed that this was not PSAPCA's intent and that the ppm limits in the permit should be modified to correlate with the short term mass limits at full capacity. At a stack flow rate of 102464 dscf/minute at 8.34% oxygen, concentration limits of 700 ppm hourly, and 500 ppm 24 hour (NOx), 34ppm (SO2) and 1047ppm (CO) will yield the hourly and 24 hour mass limits stated in the permit for these pollutants as shown in attachment 10. With this change the short term mass limits in the permit no longer serve any purpose. Ash Grove requests that they be deleted, so that a single emission spike no longer causes two permit exceedances. We understand that the annual mass limits in the permit are necessary for PSD purposes, and we do not propose to eliminate or change those limits.

3. CEM violations

At the meeting, we discussed the fact that PSAPCA's Form CEM-1 provides a column for reporting "CEM violations", but that Regulation I does not appear to define what that term means. Until PSAPCA adopts such a requirement by rule, Ash Grove will continue to file form CEM-2 each month, containing data on the number of valid hours of monitoring logged each day by each of Ash Grove's monitors. But we will not report any CEM violations.

4. Reporting upsets.

By letter of February 17, Jim Nolan advised the regulated community that PSAPCA no longer wishes to receive telephone notice of upsets. We read WAC 173-400-107(3) as requiring notice to PSAPCA "as soon as possible" of exceedances that the source believes to be unavoidable. Ash Grove will be happy to provide this notice by any method PSAPCA requests. Please advise us of how you would like to see upsets reported. Note that this request applies only to exceedances for which Ash Grove may want to claim the "unavoidable Excess emissions" defense. We will continue to report all exceedances in our monthly CEM-1 filings.

We appreciate PSAPCA's attention to these requests.

Sincerely,

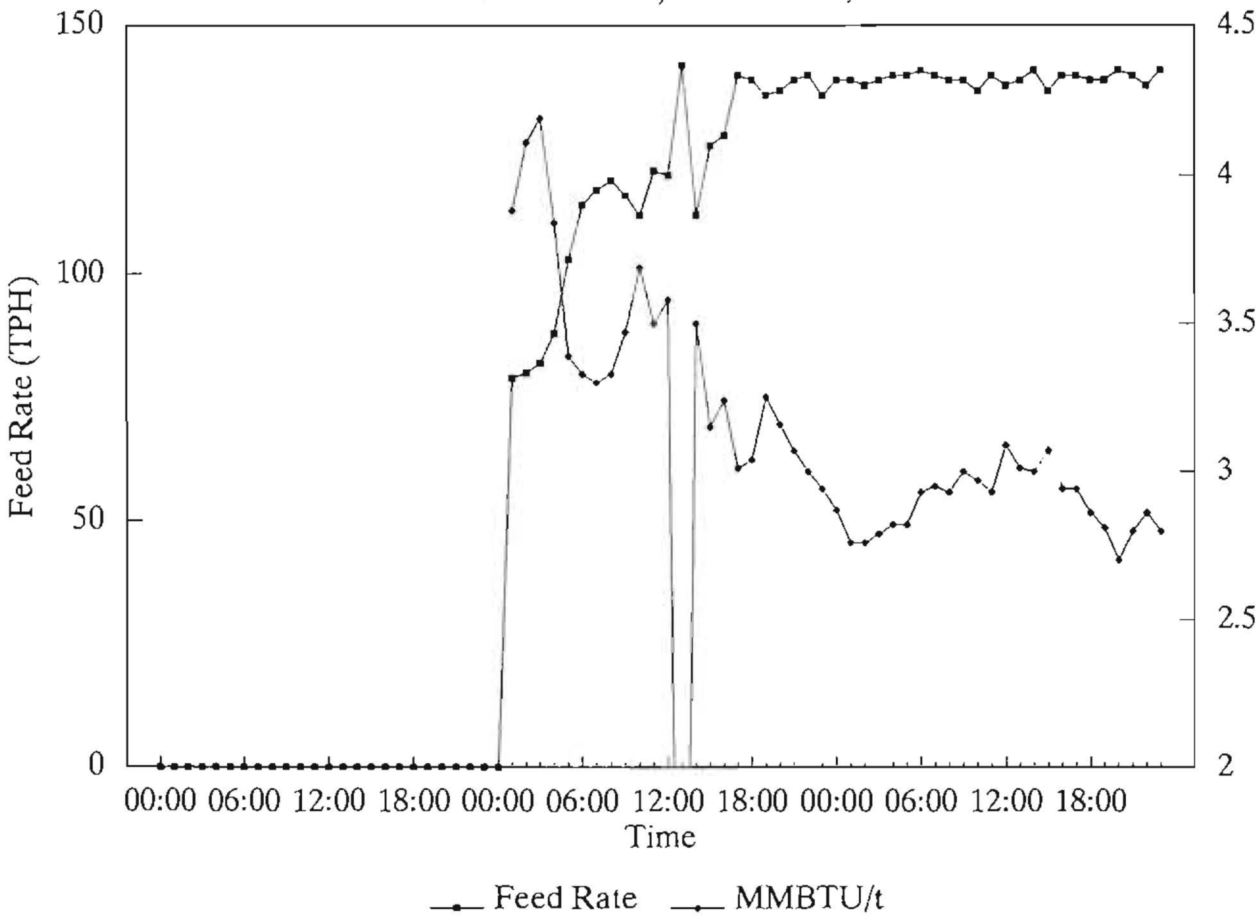
Gerald J. Brown

Gerald J. Brown
Manager, Safety and Environment

Copy: KJR
ESP
HES
JTH

Feed vs MMBTU/t, Feb. 26 – 28

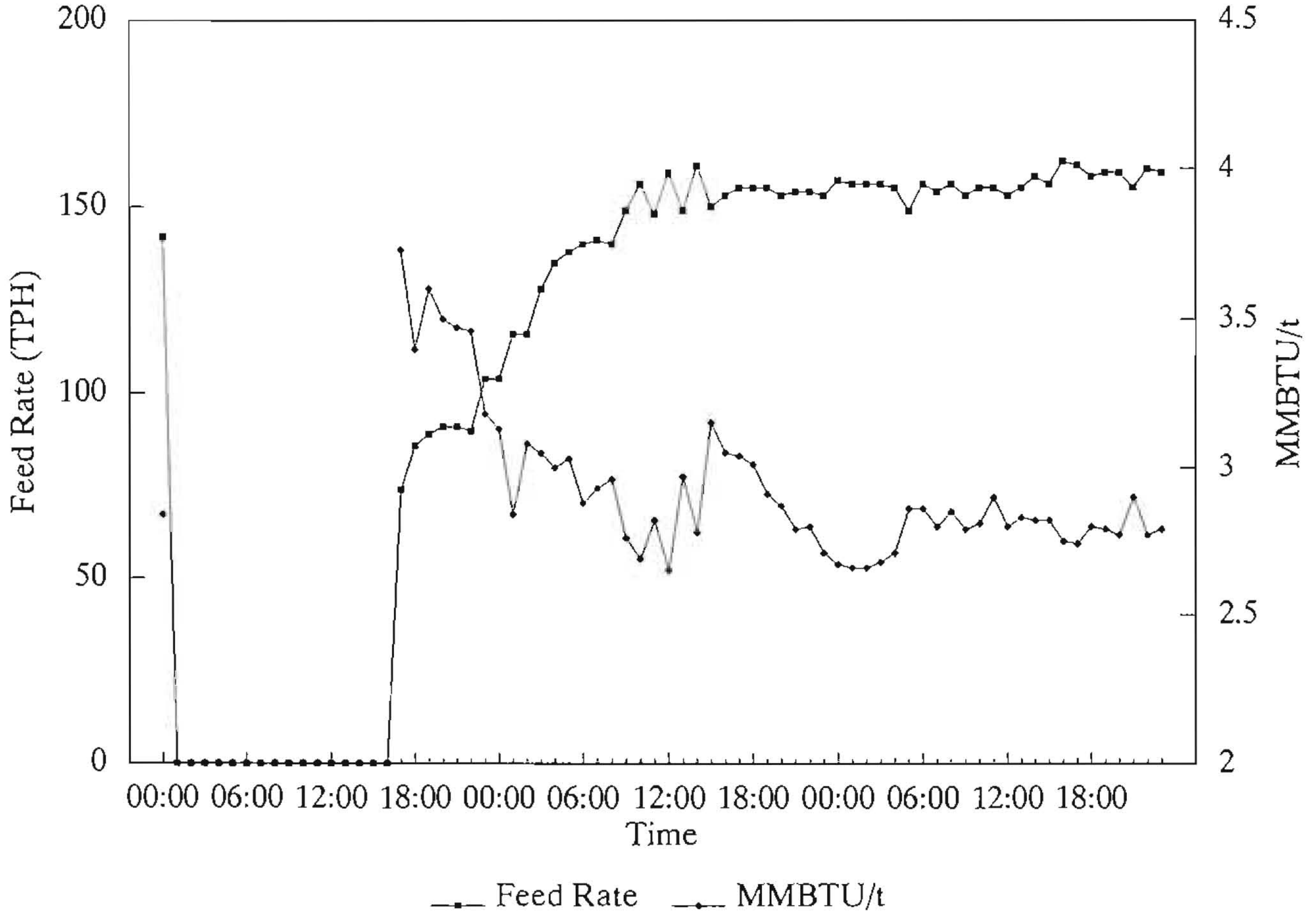
Ash Grove Cement, Seattle Plant, 1994



Attachment 1

Feed vs MMBTU/t, Mar. 1 – 3

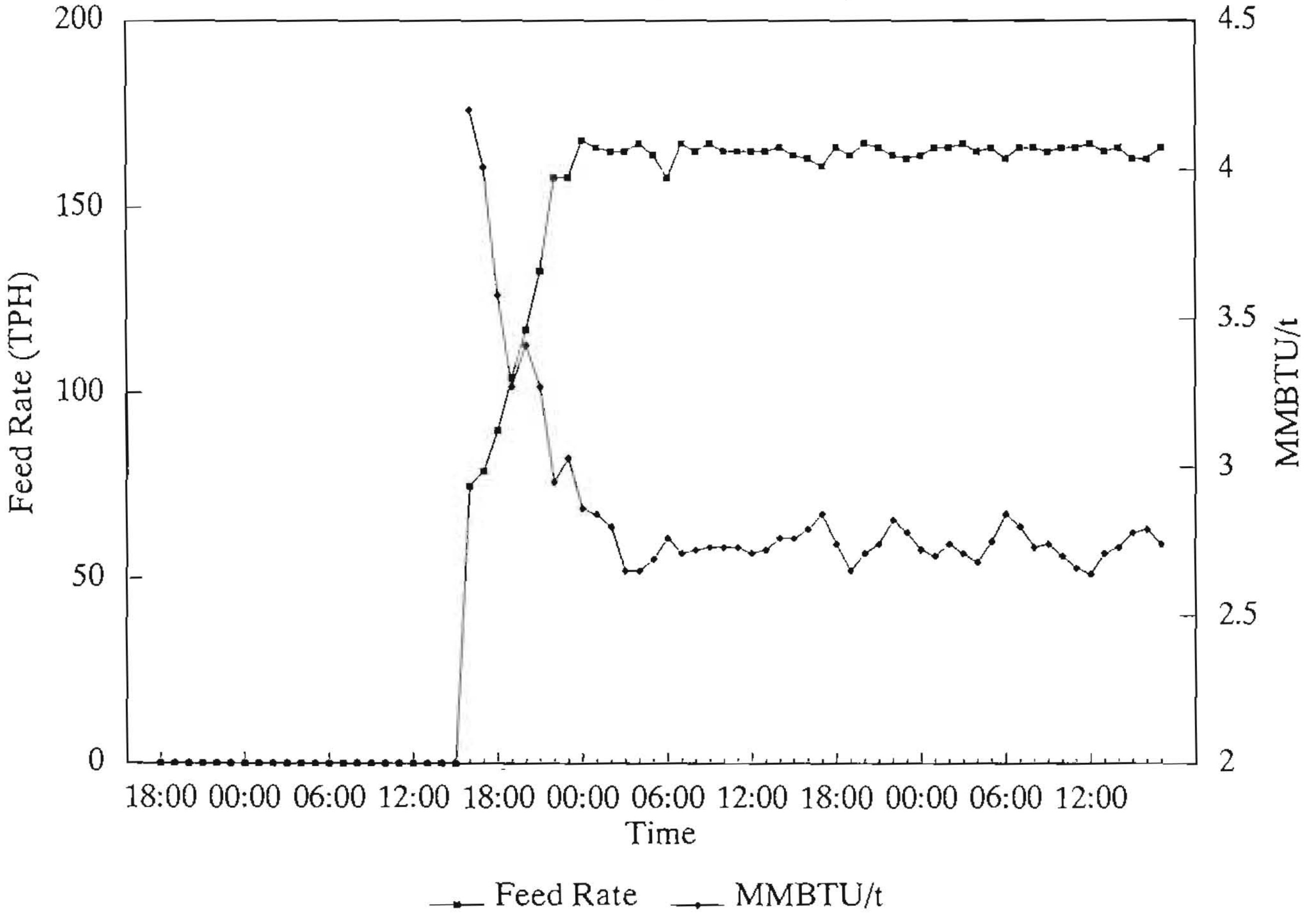
Ash Grove Cement, Seattle Plant, 1994



Attachment 2

Feed vs MMBTU/t, Mar. 17 – 20

Ash Grove Cement, Seattle Plant, 1994



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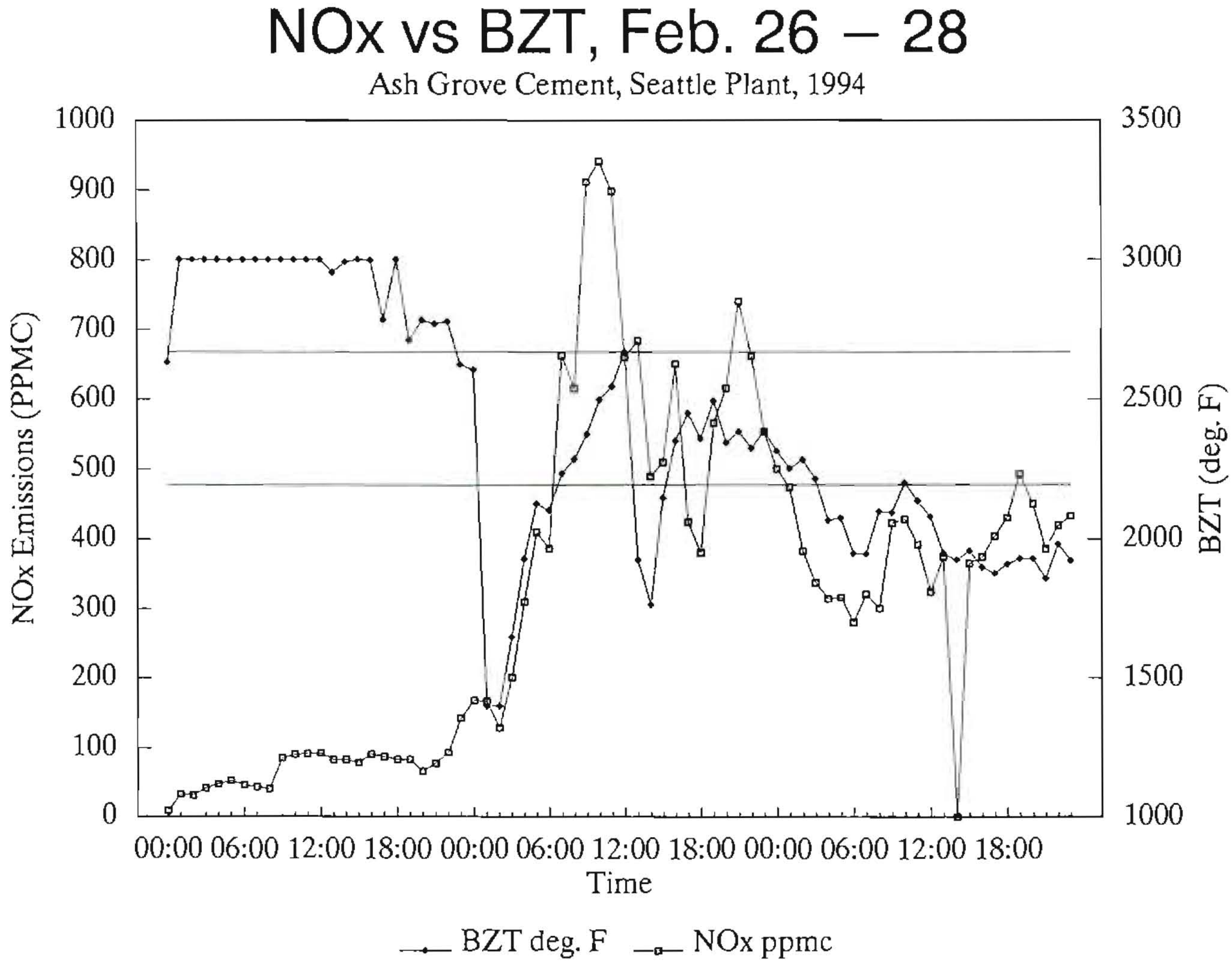
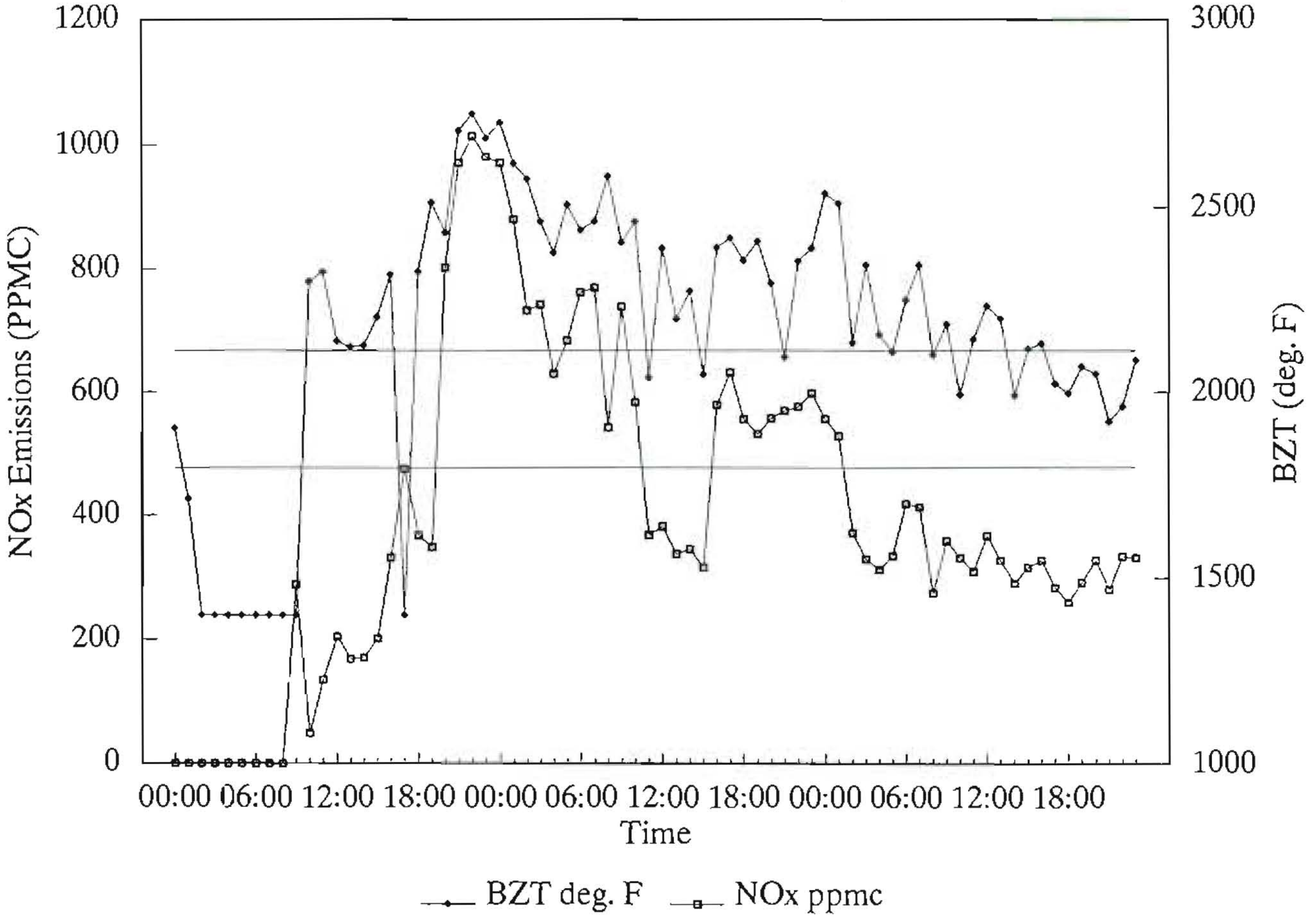


Attachment 4

NOx vs BZT, Mar. 1 – 3

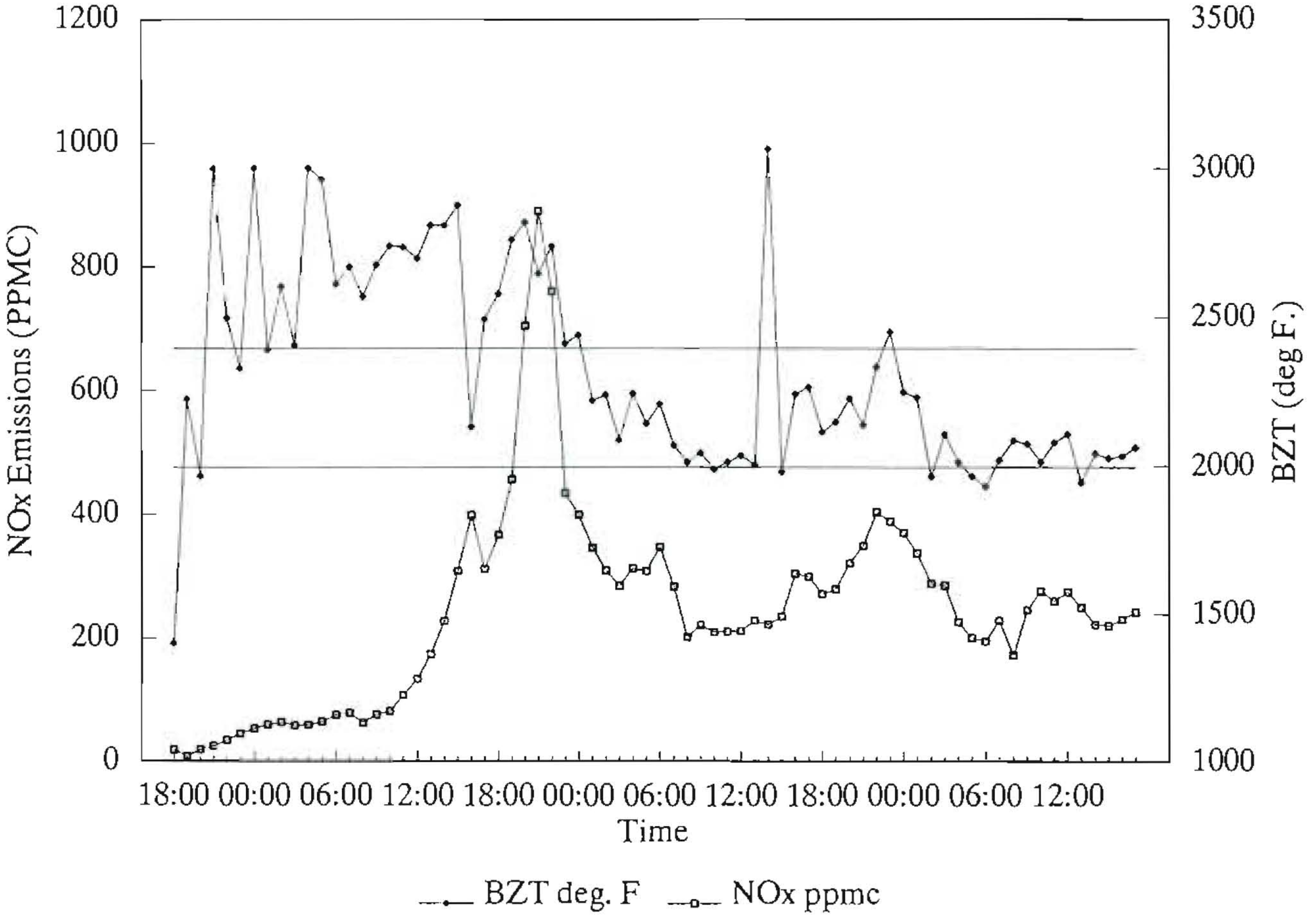
Ash Grove Cement, Seattle Plant, 1994



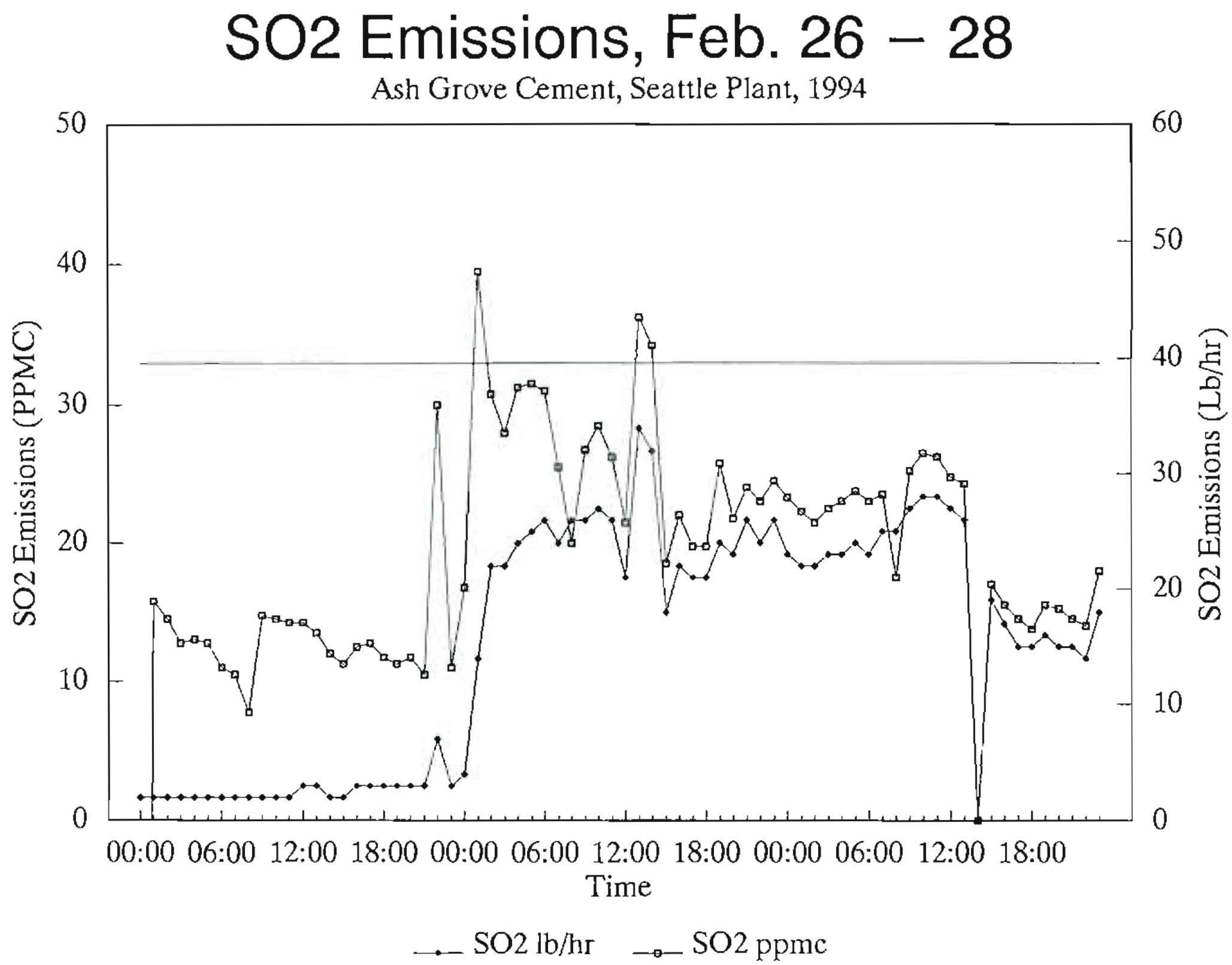
Attachment 5

NOx vs BZT, Mar. 17 – 20

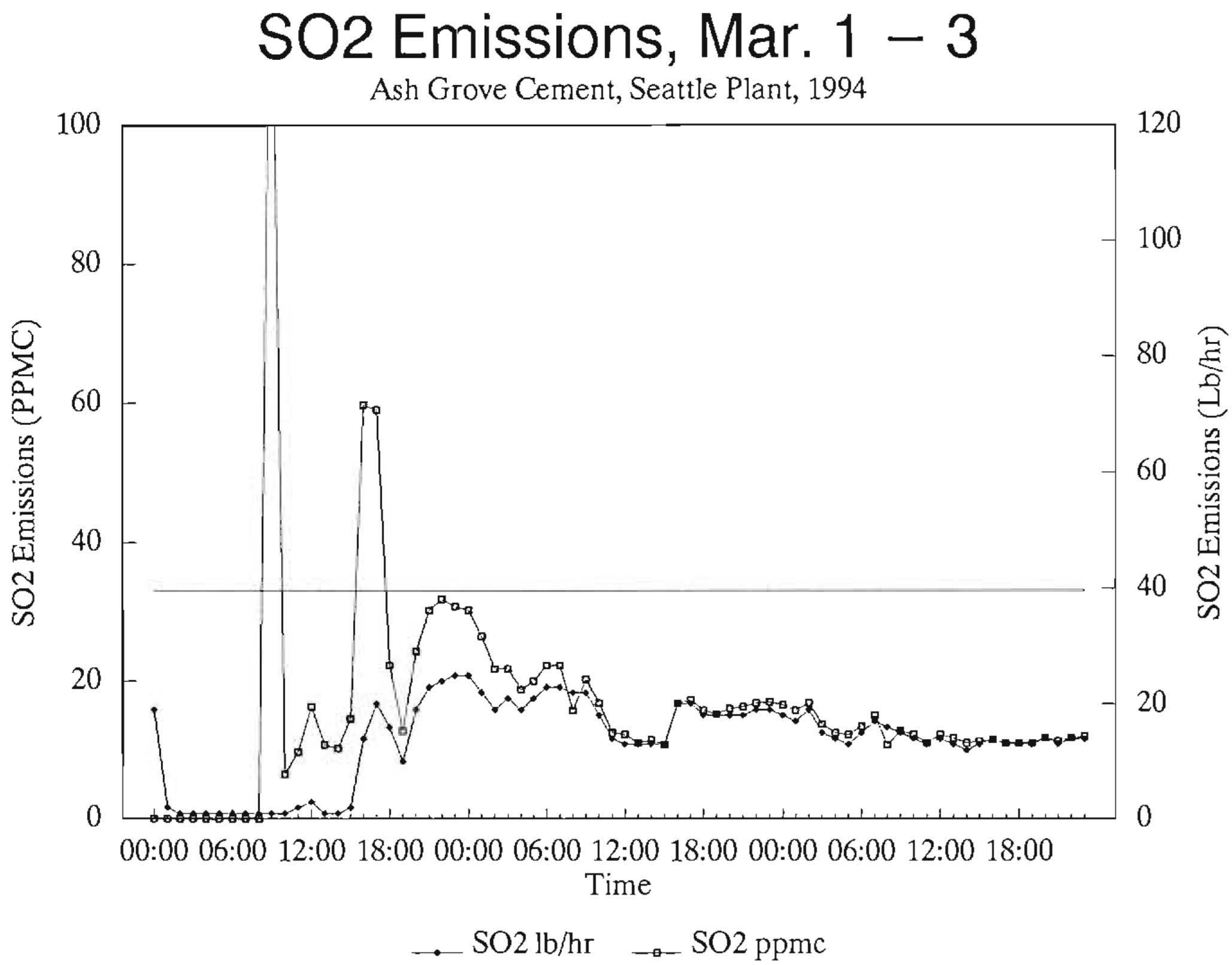
Ash Grove Cement, Seattle Plant, 1994



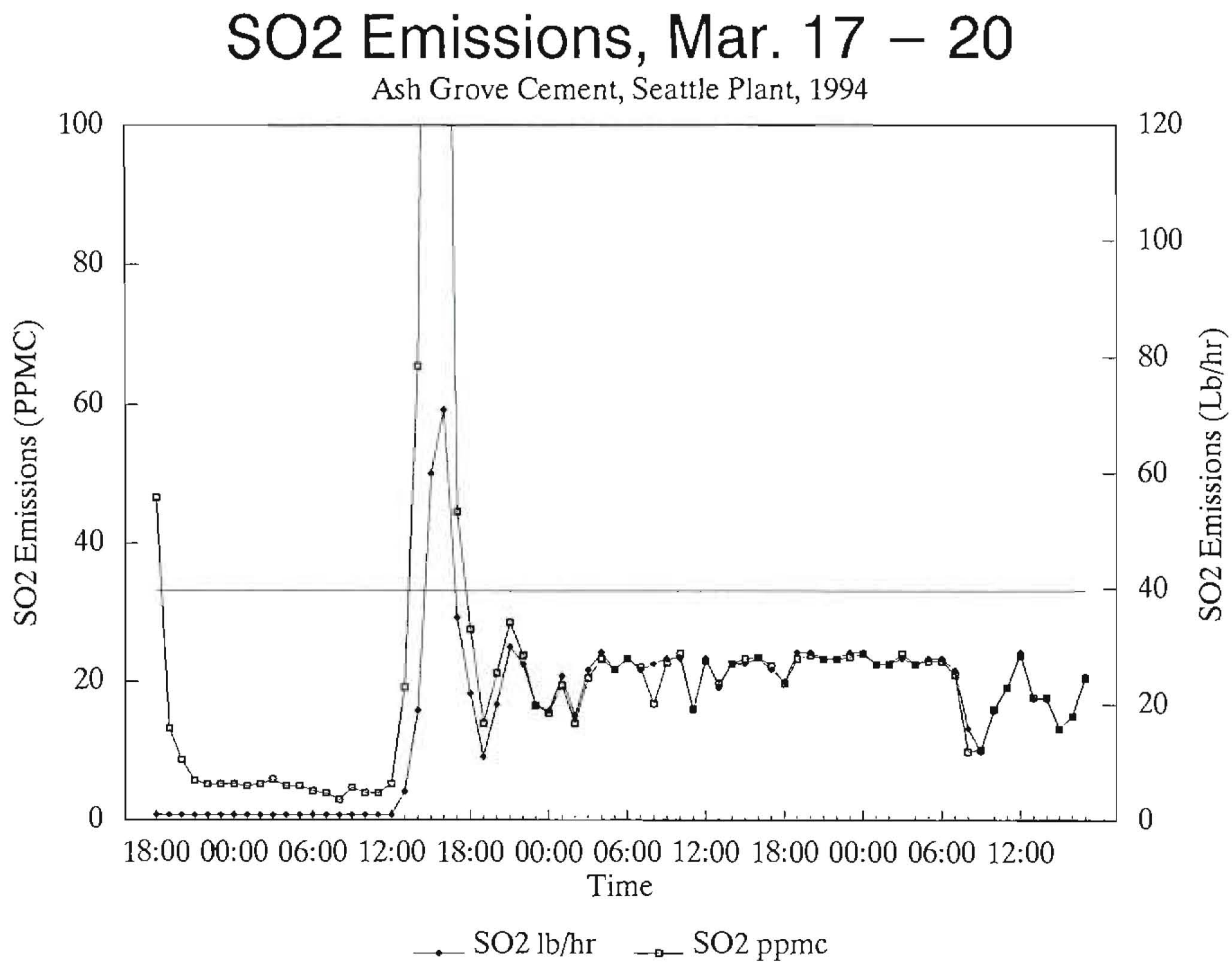
Attachment 6



Attachment 7



Attachment 8



Attachment 9

Attachment 10

GENERAL FORMULA
((lbs/hr)/(MW x 2.59x10-9 x FLOW x 60) x (20.95 - 10)/(20.95 - O2%) = ppmc

SO2
((40)/64.06 x 2.59x10-9 x 102464 x 60) x (20.95 - 10/20.95 - 8.34) = **34ppm**

CO
((538)/28.01 x 2.59x10-9 x 102464 x 60) x (20.95 - 10/20.95 - 8.34)= **1047ppm**

NOx (1 HR.)
((590)/46.01 x 2.59x10-9 x 102464 x 60) x (20.95 - 10/20.95 - 8.34) = **700ppm**

NOx (24HR.)
((422)/46.01 x 2.59x10-9 x 102464 x 60) x (20.95 - 10/20.95 - 8.34) = **500ppm**

Appendix A
Kiln Start Up/Shutdown
and Maintenance Procedures

KILN STARTUP - PREHEATING

1. Start main baghouse.

2. Follow the 24 hour preheating schedule as shown on the attached graph for increasing kiln temperature, decreasing oxygen and for kiln rotation.

3. Adjust the ID fan damper and speed to increase stage 5 temperature approximately 60 degrees F per hour (following the preheating schedule) as fuel is increased.

4. Adjust ID fan damper and speed to slowly decrease kiln feed end oxygen per preheat graph.

KILN STARTUP - FEED ADDITION

1. When kiln is prepared for feed as per the preheating schedule, start kiln main drive on .9 revolutions per minute (RPM).

2. After kiln is on main drive, start kiln feed at 75 tons per hour.

3. When the feed enters the preheater at stage 1, increase ID fan and fuel to maintain 2% oxygen at kiln feed end and 1500 degrees F stage 5 exit temperature.

4. Add sorbent, when necessary to control sulfur dioxide emissions to below permit level.

5. As permitted by the quality of the material produced, increase feed rate and adjust the draft and the fuel accordingly to achieve 160 tons per hour production.

6. Estimated startup time: 0 - 48 hours depending on kiln preheating.

Appendix A

KILN SHUT DOWN

1. Stop feed, shut off fuel and reduce draft.
   a. For emergency shut downs, retain as much heat as possible in the kiln to ease restart after the cause is corrected.

2. The kiln is rotated per the schedule:

0 - 1 Hours	Continuous turns
1 - 3 Hours	5 minute turns
3 - 8 Hours	10 minute turns
8 - 16 Hours	12 minute turns
16 - 24 Hours	30 minute turns

   All turns are to be made on auxiliary drive and should be approximately 100 degrees.

3. Open the preheater damper 5% every hour beginning 2 hours after the fire is taken off the kiln. If the temperature at the 5th stage exit is decreasing faster than 60 degrees F per hour, reduce opening percentage accordingly.

4. If a critical position is made or heavy rains begin, kiln should be rotated continuously until either clears.

5. The main bag house will remain in operation.

6. 24 hours is required for cool down before entry is made into the kiln.

MAIN BAGHOUSE MAINTENANCE PROCEDURES

Monitoring Performance

1. Main Baghouse temperatures and pressures in the are continuously monitored by the control room while performance is checked by an opacity monitor on the kiln stack.

2. Condition of the baghouse components are inspected routinely to prevent failures occurring during operation.

Trouble shooting

1. Efforts to repair deficiencies will begin immediately upon detection.

2. Once a problem is identified and located, individual cell(s) containing the defective equipment can be isolated for repairs without shutting down the entire baghouse.

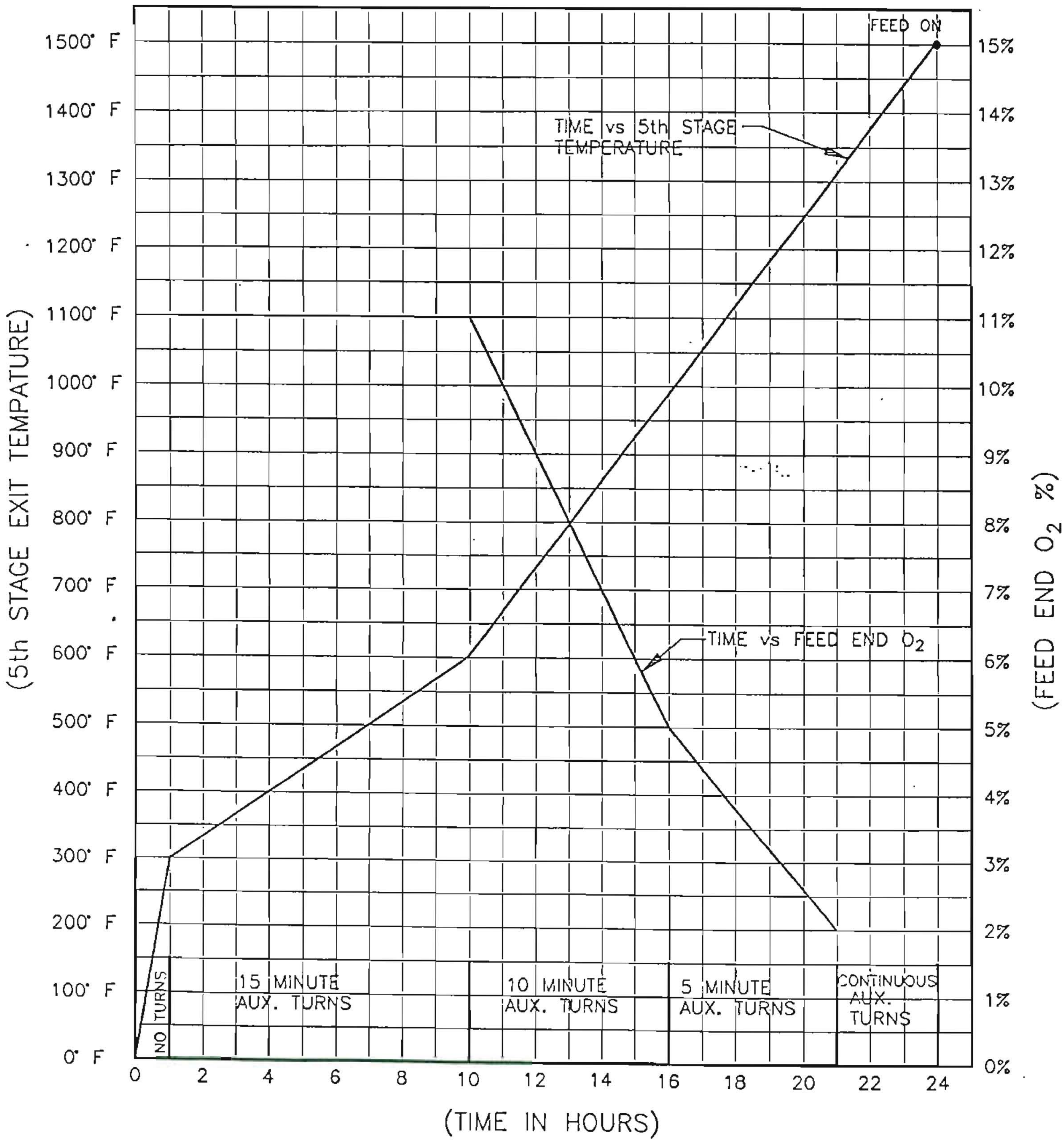
3. Bag House inlet and blow back dampers are closed and secured to isolate the cell(s) containing the problem .

4. Cell(s) doors are opened and the cell is allowed to cool for safe entry.

5. Once the repairs are completed, the cell(s) is returned to operation.

ASH GROVE CEMENT CO.

Appendix A



KILN PREHEATING SCHEDULE

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